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PATENT

Attorney Reference Number 4239-61854
Application Number 10/031,158

Claims

This listing of claims will replace all prior listings of claims:

Claim 1 (currently amended): An isolated A substantially purified polypeptide comprising an amino acid sequence comprising:

~~selected from the group consisting of a TCRγ Alternate Reading Frame Protein ("TARP"), (a)~~
an amino acid sequence set forth as SEQ ID NO: 14, or a variant thereof having a conservative substitution;

(b) an immunogenic fragment thereof of the protein comprising the amino acid sequence set forth as SEQ ID NO: 14, or variant thereof having a conservative substitution;[,]

(c) a polypeptide with at least 90% sequence identity to ~~TARP~~ the amino acid sequence set forth as SEQ ID NO: 14 and which that is specifically recognized by an antibody which that specifically recognizes ~~TARP~~ the protein comprising the amino acid sequence set forth as SEQ ID NO: 14; and or

(d) a polypeptide which that has at least 90% sequence identity with ~~TARP~~ the amino acid set forth as SEQ ID NO: 14 and which that, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells which that express ~~TARP~~ the protein encoded by the amino acid sequence set forth as SEQ ID NO: 14.

Claim 2 (currently amended): An isolated The substantially purified polypeptide of claim 1, wherein the polypeptide comprises the sequence of ~~TARP~~ the amino acid sequence set forth as SEQ ID NO: 14, or a variant thereof having a conservative substitution.

Claim 3 (currently amended): An isolated The substantially purified polypeptide of claim 1, wherein the ~~polypeptide-polypeptide~~ comprises the sequence of an immunogenic fragment of ~~TARP~~ the amino acid sequence as set forth as SEQ ID NO: 14, or a variant thereof having a conservative substitution.

Claim 4 (currently amended): An isolated The substantially purified polypeptide of claim 1, which wherein the ~~polypeptide polypeptide~~ has at least 90% sequence identity to ~~TARP~~ an amino acid

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sequence as set forth as SEQ ID NO: 14 and is specifically recognized by an antibody ~~which that~~ specifically recognizes ~~TARP~~ the amino acid sequence as set forth as SEQ ID NO: 14.

Claim 5 (currently amended): ~~An isolated~~ The substantially purified polypeptide of claim 1, ~~which wherein the~~ polypeptide has at least 90% sequence identity ~~with TARP to the amino acid~~ sequence as set forth as SEQ ID NO: 14 and ~~which that~~, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells ~~which that~~ express ~~TARP~~ the protein encoded by the amino acid sequence as set forth as SEQ ID NO: 14.

Claim 6 (currently amended): A composition comprising a polypeptide of claim [2] 1 and a pharmaceutically acceptable carrier.

Claims 7-9 (canceled herein).

Claim 10 (currently amended): ~~An isolated,~~ A substantially purified recombinant nucleic acid molecule ~~comprising a nucleotide sequence encoding a polypeptide having the amino acid sequence of a TCR γ Alternate Reading frame Protein ("TARP"), an immunogenic fragment thereof, a polypeptide with at least 90% sequence identity to TARP and which is specifically recognized by an antibody which specifically recognizes TARP, and a polypeptide which has at least 90% sequence identity with TARP and which, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells which express TARP encoding the polypeptide of claim 1.~~

Claims 11-14 (canceled herein).

Claim 15 (currently amended): The ~~isolated,~~ substantially purified recombinant nucleic acid molecule of claim 10 ~~which is an expression vector comprising a promoter, operatively operably linked to a promoter the nucleotide sequence.~~

Claim 16 (currently amended): The ~~isolated,~~ substantially purified recombinant nucleic acid molecule of claim 15, wherein ~~said the~~ nucleotide sequence encodes a polypeptide having

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comprising the amino acid sequence of a TCR γ Alternate Reading frame Protein ("TARP") as set forth as SEQ ID NO: 14, or a variant thereof having a conservative substitution.

Claim 17 (currently amended): The isolated, substantially purified recombinant nucleic acid molecule of claim 15, wherein said the nucleotide sequence encodes a polypeptide having comprising the amino acid sequence of an immunogenic fragment of TARP the protein comprising the amino acid sequence as set forth as SEQ ID NO: 14, or variant thereof having a conservative substitution.

Claim 18 (currently amended): The isolated, substantially purified recombinant nucleic acid molecule of claim 12, wherein said the nucleotide sequence encodes a polypeptide with at least 90% sequence identity to TARP an amino acid sequence as set forth as SEQ ID NO: 14 and which that is specifically recognized by an antibody which that specifically recognizes TARP a protein comprising the amino acid sequence as set forth as SEQ ID NO: 14.

Claim 19 (currently amended): The isolated, substantially purified recombinant nucleic acid of claim 12, wherein said the nucleotide sequence encodes a polypeptide which that has at least 90% sequence identity with TARP to the amino acid sequence as set forth as SEQ ID NO: 14 and which that, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells which that express TARP the amino acid sequence as set forth as SEQ ID NO: 14.

Claim 20 (currently amended): A method for eliciting an immune response in a subject, comprising administering to a subject a composition which ~~composition is selected from the group consisting of: an isolated polypeptide having the amino acid sequence of a TCR γ Alternate Reading frame Protein ("TARP"), an immunogenic fragment thereof, a polypeptide with at least 90% sequence identity to TARP and which is specifically recognized by an antibody which specifically recognizes TARP, a polypeptide which has at least 90% sequence identity with TARP and which, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells which express TARP, comprising:~~

(a) the polypeptide of claim 1;

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(b) an isolated a substantially purified nucleic acid encoding one of these polypeptides the polypeptide of claim 1 in an expression vector;

(c)[,] an antigen presenting cell pulsed with a polypeptide comprising an epitope of TARP, the polypeptide of claim 1 and cells sensitized in vitro to TARP, or an immunogenic fragment thereof, a polypeptide with at least 90% sequence identity to TARP which is specifically recognized by an antibody which specifically recognizes TARP, or a polypeptide which has at least 90% sequence identity with TARP which, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells which express TARP thereby eliciting an immune response in the subject.

Claims 21-23 (canceled herein).

Claim 24 (currently amended) The method of claim 20 wherein the ~~administration to a~~ subject ~~who suffers from~~ has prostate cancer.

Claim 25 (currently amended): The method of claim 20, wherein the ~~administration is to a~~ subject ~~who suffers from~~ has breast cancer.

Claim 26 (currently amended): The method of claim 20, wherein the ~~administration is to a~~ female subject ~~who has not been diagnosed with~~ is a female at risk for developing breast cancer.

Claim 27 (currently amended) The method of claim 20 wherein the ~~administration~~ administered composition further comprises sensitizing CD8+ cells in vitro to an epitope of a TARP protein and administering the sensitized cells to the subject that are sensitized with antigen presenting cells pulsed with a polypeptide comprising an epitope of the protein having an amino acid sequence as set forth as SEQ ID NO: 14, or a variant thereof having a conservative substitution.

Claim 28 (currently amended): The method of claim 20, further comprising co-administering to the subject an immune adjuvant ~~selected from~~ comprising a non-specific immune adjuvants adjuvant, a subcellular microbial ~~products~~ product and ~~fractions~~ fraction, a ~~haptens~~ haptens haptens, an

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immunogenic proteins protein, an immunomodulators immunomodulator, an interferons interferon, a thymic hormones hormone and, or a colony stimulating factors factor.

Claim 29 (currently amended): The method of claim 20, comprising administering an antigen presenting cell pulsed with a polypeptide comprising an epitope of TARP the protein having an amino acid sequence as set forth as SEQ ID NO: 14, or a variant thereof having a conservative substitution.

Claim 30 (currently amended): The method of claim 20 ~~comprising administering a, wherein the substantially purified nucleic acid sequence encoding polypeptide comprising an epitope of TARP, which nucleic acid is in a recombinant virus.~~

Claim 31 (currently amended): The method of claim 20 ~~comprising administering a wherein the nucleic acid has a sequence as set forth as SEQ ID NO: 13 or a degenerate version thereof encoding a polypeptide comprising an epitope of a TARP protein.~~

Claim 32 (currently amended): ~~The A method of claim 20 eliciting an immune response, comprising administering an expression vector that expresses a polypeptide to a subject a composition, comprising an epitope of a TARP protein, which expression vector is in a recombinant bacterial cell comprising the nucleic acid molecule of claim 15.~~

Claim 33 (currently amended): ~~The A method of claim 20 eliciting an immune response, comprising administering to a subject a composition, comprising immunizing the subject with a expression vector that expresses a polypeptide comprising an epitope of a TARP protein, which expression vector is in an autologous recombinant cell comprising the nucleic acid molecule of claim 15.~~

Claim 34 (currently amended): The method of claim 27 wherein the CD8+ cells are T_C cells cytotoxic T lymphocytes.

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Claim 35 (currently amended): The method of claim 34 wherein the T_C-cells cytotoxic T lymphocytes are tumor infiltrating lymphocytes.

Claim 36 (currently amended): A method for detecting, ~~in a male, a prostate cell of epithelial origin, or, in a female, a breast cancer~~ in a subject cell, comprising detecting in a cell sample from ~~said male or said female~~ the subject ~~the hybridization of a probe specific for a nucleic acid transcript encoding TARP, or detecting TARP produced by translation of the transcript that encodes the polypeptide of claim 1,~~ whereby ~~detection of the transcript or of the protein in a cell from said male identifies the cell as a prostate epithelial cell and whereby detection of the transcript or of the protein in a cell from said female identifies the cell as a breast~~ the hybridization of the probe to the nucleic acid indicates that the subject has cancer cell.

Claim 37 (original): The method of claim 36, comprising detecting the transcript.

Claim 38 (original): The method of claim 36, comprising detecting the protein.

Claim 39 (original): The method of claim 36, comprising contacting RNA from the cell with a nucleic acid probe that specifically hybridizes to the transcript under hybridization conditions, and detecting hybridization.

Claim 40 (currently amended): The method of claim 36, comprising disrupting ~~said the~~ cell and contacting a portion of the cell contents with a chimeric molecule comprising a targeting moiety and a detectable label, wherein the targeting moiety specifically binds to the protein, and detecting the label bound to the protein.

Claim 41 (currently amended): The method of claim 36, wherein ~~the cell is taken from~~ hybridization is detected in a sample comprising a lymph node cell of the subject.

Claim 42 (currently amended): The method of claim 36, wherein ~~the cell is taken from~~ hybridization is detected in a sample comprising a breast biopsy cell of the subject.

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Claim 43 (currently amended) An antibody that specifically binds to an epitope of a TCR γ Alternate Reading frame Protein the polypeptide of claim 1.

Claim 44 (currently amended): A method of modulating levels of TARP a protein comprising the amino acid sequence as set forth as SEQ ID NO: 14 in a cell, ~~said~~ comprising introducing into ~~said the~~ cell a composition ~~selected from the group consisting of~~ comprising: a ribozyme ~~which that~~ specifically cleaves a TARP-encoding nucleic acid of claim 10, an antisense oligonucleotide ~~which that~~ specifically binds to a TARP-encoding nucleic acid of claim 10, a DNA binding protein ~~which that~~ binds specifically to a TARP-encoding nucleic acid of claim 10, and or a nucleic acid of claim 10, encoding TARP operatively linked to a promoter.

Claim 45 (new): The substantially purified polypeptide of claim 1, wherein the polypeptide comprises the amino acid sequence set forth as SEQ ID NO: 14.

Claim 46 (new): The nucleic acid of claim 10, comprising the nucleic acid sequence as set forth as SEQ ID NO: 13.

Claim 47 (new): A vector comprising the nucleic acid of claim 15.

Claim 48 (new): The method of claim 36, comprising detecting the hybridization in a prostate epithelial cell of a male.

Claim 49 (new): The method of claim 36, comprising detecting the hybridization in a breast cell of a female.

Claim 50 (new): A method of detecting cancer in a subject, comprising detecting the contacting of an antibody that specifically binds a protein having the amino acid sequence as set forth as SEQ ID NO: 14, or a variant thereof having a conservative substitution in a sample from the subject, whereby detection of the binding indicates that the subject has cancer.

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Claim 51 (new): The method of claim 36, wherein the subject is a male and the cell is a prostate epithelial cell.

Claim 52 (new): The method of claim 36, wherein the subject is a female and the cell is a breast cell.

Claim 53 (new): The method of claim 51, wherein the sample comprises a lymph node cell.

Claim 54 (new): The method of claim 51, wherein the sample comprises a breast biopsy cell.